A hummingbird species new to Peru: range extension for the Greenish Puffleg *Haplophaedia aureliae*

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Pufflegs of the genus *Haplophaedia* inhabit the foothills and main cordilleras of the northern and central Andes from extreme eastern Panama and northern central Colombia to north-west Bolivia (e.g. Wetmore 1968, Fjeldså & Krabbe 1990, Schuchmann 1999). Presently, three species are recognised, *H. aureliae*, *H. assimilis* and *H. lugens* (Schuchmann *et al.* 2000). The latter taxon is endemic to the western Andean slope from south-west Colombia and north-west Ecuador, and is characterised by a blackish-green plumage. *H. aureliae* occurs from eastern Panama (Darién highlands) to southern Ecuador, mainly along the east slope of Andes. From north-east Peru to western Bolivia, it is replaced by *H. assimilis*. These taxa can be discriminated by the reflectance of greenish plumage (duller in *assimilis*) and the coloration of the typically enlarged tibial tufts (mostly whitish in *aureliae*, buff to cinnamon in *assimilis*: Schuchmann *et al.* 2000).

A recent study of Andean hummingbirds in the collection of the Louisiana State University Museum of Zoology, Baton Rouge (LSUMZ), yielded two previously overlooked specimens of *H. aureliae* from the north-east Andes of Peru. Following the taxonomic concept applied by Schuchmann *et al.* (2000), they represent the first species records for Peru.

Material and methods

During biogeographic and taxonomic studies of *Haplophaedia*, a total 94 specimens of *H. aureliae* and 29 *H. assimilis* were examined for distribution and geographic variation in accordance to methods in Schuchmann *et al.* (2000). Where possible, four standard measurements were obtained using a digital calliper (accuracy 0.1 mm): bill length (from tip to nasal operculum), wing length (unflattened chord), and tail length (rectrices 1, 5). Coordinates and altitudes of localities, if not given on specimen labels, were determined through reference to ornithological gazetteers (Stephens & Traylor 1983, Paynter 1993, 1997) and additional literature (Fitzpatrick & O'Neill 1979).

Results and discussion

The known ranges of the six subspecies of Greenish Puffleg can be summarised as follows (from north to south, after Schuchmann *et al.* 2000; Fig. 1):

H. a. galindoi Wetmore, 1967: Cerros Malí and Tacarcuna, extreme east Panama (Darién) and extreme north-west Colombia (Chocó);

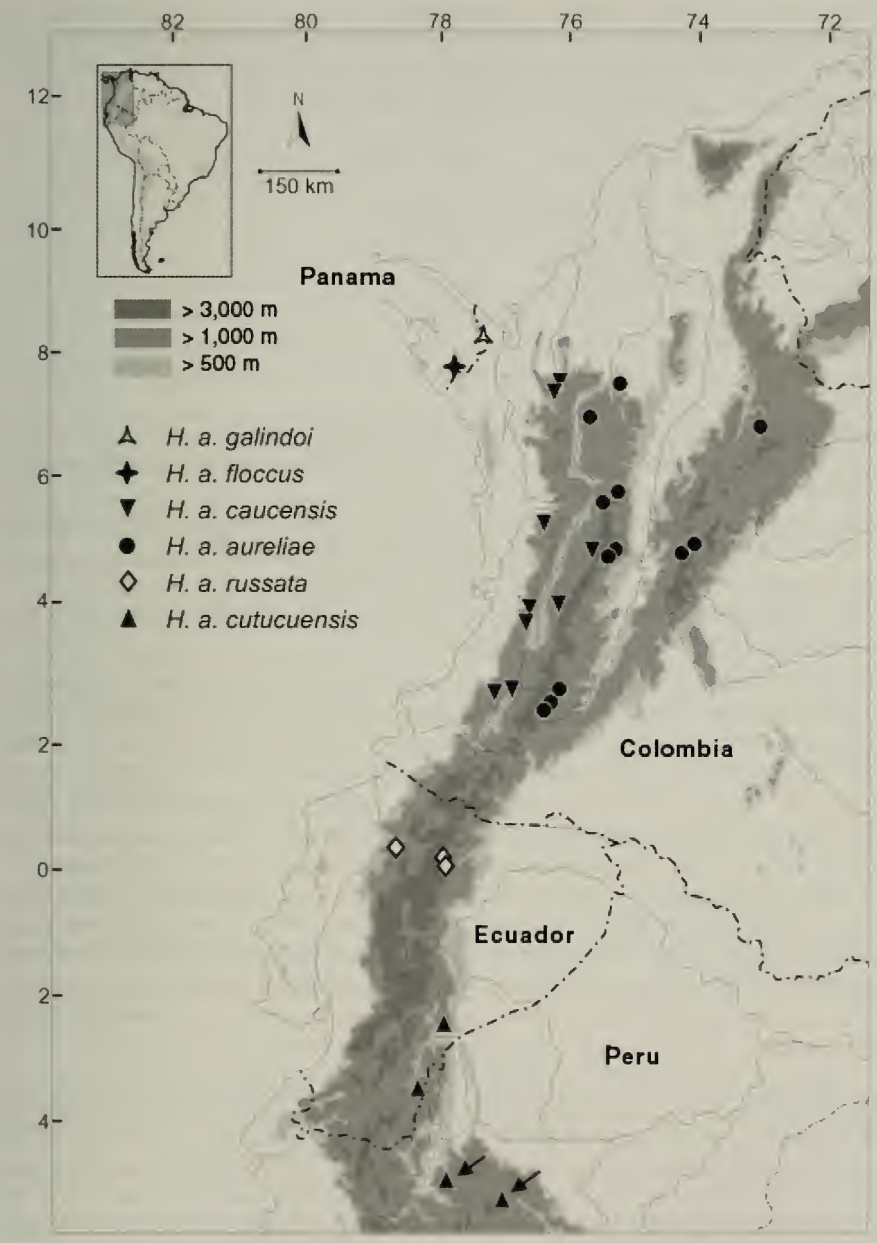

Figure 1. Distribution of subspecies of Greenish Puffleg *Haplophaedia aureliae*, based on examined specimens. Arrows indicate localities within Peruvian territory (LSUMZ 81858, 87525).

TABLE 1

Comparison of biometrics (mean ± s.d. [number of specimens], range) for measurements (mm) of both sexes of *Haplophaedia aureliae cutucuensis* (southern Ecuador) with LSUMZ specimens from north-east Peru (including data from Schuchmann *et al.* 2000).

Sex/specimen	Bill length	Wing length	Rectrix 1 length	Rectrix 5 length
Male	21.5±0.7 (8) 20.5–22.6	60.8±1.0 (6) 59.8–62.1	35.9±1.2 (8) 33.8–37.7	40.1±0.5 (7) 39.4–40.9
Female	20.9–22.0 (2)	54.6–54.9 (2)	33.0–34.5 (2)	33.2–34.9 (2)
LSUMZ 81858, M	19.8	60.6	35.6	37.0
LSUMZ 87525, F (?)	21.2	56.4	–	–

H. a. floccus Nelson, 1912: Cerro Pirre, east Panama (Darién);
H. a. caucensis Simon, 1911: Cordillera Occidental to western slope of the Cordillera Central, Colombia;
H. a. aureliae Bourcier & Mulsant, 1846: the northern and eastern Cordillera Central and western slope of the Cordillera Oriental, Colombia;
H. a. russata Gould, 1871: northern Andes of Ecuador;
H. a. cutucuensis Schuchmann, Weller & Heynen, 2000: Cordillera de Cutucú and Cordillera del Condor, southern Ecuador.

Until recently, specimens of this genus from Peru had usually been assigned to *H. aureliae*, as the forms *affinis* and *assimilis* were previously merged within this taxon (e.g. Simon 1921, Peters 1945, Zimmer 1951, Fjeldså & Krabbe 1990, Schuchmann 1999). Under the new taxonomy presented by Schuchmann *et al.* (2000), *H. assimilis* (including the subspecies *affinis*) was afforded species rank. Consequently, all Peruvian genus records refer to this taxon. Thus, it is unsurprising that the LSUMZ specimens had not been previously mentioned in the literature.

Both specimens (LSUMZ 81858, 87525) were obtained during LSUMZ bird surveys undertaken in the 1970s to the Andes of northern and north-east Peru (e.g. Fitzpatrick *et al.* 1977, O'Neill & Graves 1977, Fitzpatrick & O'Neill 1979). These expeditions produced not only valuable distributional and life history data for many poorly known Andean birds, but also yielded several new taxa to science, including the spectacular Royal Sunangel *Heliangelus regalis* (Fitzpatrick *et al.* 1979).

The first specimen of *H. aureliae* (81858) taken in Peru was collected by J. P. O'Neill on 26 June 1976 '10 km (by road) below (NE) Abra Patricia on road to Rioja', dpto. San Martín, at 6,200 ft (= *c.*2,000 m). Fitzpatrick & O'Neill (1979) gave the coordinates for Abra Patricia as 05°46'S, 77°42'W. More than two years later, on 13 August 1978, a second specimen (87525) was collected by T. S. Schulenberg along the 'trail 20 km E La Peca', dpto. Amazonas, at a similar altitude (6,250 ft) to the preceding locality. Further north than Abra Patricia, La Peca (= La Peca Nueva, trail at *c.*05°34'S/78°22'W; cf. Stephens & Traylor 1983) is located in

the semi-isolated Cordillera de Colán east of the Utcubamba Valley. Habitat at both collecting sites is described as stunted cloud forest (Fitzpatrick & O'Neill 1979), which is preferred by members of *Haplophaedia* (Schuchmann 1999).

According to traditional species limits in *Haplophaedia*, both LSUMZ specimens are labelled as *H. aureliae* (one as *H. a. affinis*). This identification is supported by plumage characteristics, namely the strongly bronzish to copperish upperparts (e.g. tail-coverts), bronze-green underparts with conspicuous whitish fringes, and white leg puffs. The San Martín bird was sexed as a male, due to the cinnamon patch on the outer side of the tibial tufts and by morphometrics (Table 1). The second specimen, from dpto. Amazonas, was unsexed. Despite its plumage being partially damaged (tail, belly), it is probably a female, based on the entirely whitish leg puffs, broad subterminal throat bars, and bill and wing length (Table 1). The heavily scaled underparts of both specimens are typical of the southernmost subspecies, *cutucuensis*, but also of northern *floccus* (Schuchmann *et al.* 2000), indicating a kind of 'leapfrog pattern' (Remsen 1984). Although most mensural data fall within the range of *cutucuensis* (see Table 1), intraspecific variation was found to be generally low in *H. aureliae* (Schuchmann *et al.* 2000). Together, external characteristics suggest that these birds are *cutucuensis* rather than a morphologically distinctive and undescribed population of *H. aureliae*.

The LSUMZ records extend the currently known range of *H. aureliae* south-east by *c.*200 km across the arid central Marañón Valley, which is presumed to be a dispersal barrier for several Andean bird taxa, including hummingbirds such as metaltails *Metallura* (Heindl & Schuchmann 1998) and pufflegs *Eriocnemis* (Schuchmann *et al.* 2001). Abra Patricia is also close to the northernmost collecting site of *H. assimilis affinis*. The latter taxon occurs north at least to the Ray-Urmana range (06°28'S, 77°21'W: Schuchmann *et al.* 2000), with the distance between these localities being just *c.*70 km.

The range extension for *aureliae* reported herein is paralleled by new sight records in the north of the species' range (Serranía de Jungurudó, Panama: Angehr *et al.* 2004), suggesting that currently available, fairly scattered locality data for *Haplophaedia* (see Schuchmann *et al.* 2000) reflect insufficient sampling rather than real distributional patterns. Future ornithological work in thus far unexplored areas, including north-east Peru, may result in improved distributional information for the genus.

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Notes on some seabirds of Pernambuco state, north-east Brazil

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Located in north-east Brazil, the state of Pernambuco (PE) has a coastline of 187 km (roughly between 07° and 09°S) dominated by sandy beaches fringed by the introduced coconut palm *Cocos nucifera*, with extensive mangroves of *Rhizophora mangle*, *Laguncularia racemosa* and *Avicennia* spp. only at river estuaries